Determination of Public Land (Rangeland) Health for 65009 CHATTEN-MUNCY

The Record of Decision (ROD) for the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (dated January 2001) adopted three Standards for Public Land Health. These are (1) Upland Sites Standard, (2) Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard and (3) Riparian Sites Standard.

The ROD also established a process for the BLM Field Offices for the implementation. Through a public participation process, the Roswell Field Office developed and adopted indicators to use in conjunction with existing monitoring data to assess these standards.

Field assessment worksheets and other available data that evaluate the local indicators were completed for this allotment. Based on the assessments, it is my determination that the public lands within the Chatten-Muncy allotment #65009 meet the Upland Sites standard and (2) Biotic Communities, including Native, Threatened, Endangered and Special Status Species standard. There are some concerns with the upland and biotic standards that need to be further monitored; to address these concerns these two areas will have monitoring assessments completed in FY 2005. There are no public land Riparian areas on this allotment, therefore this standard was not addressed.

/s/ T. R. KREAGER	09/09/2004
Assistant Field Manager	Date

Standards of Public Land Health
Evaluation of 65009 CHATTEN-MUNCY Allotment
[03/15/2004]

The Roswell Field Office conducted rangeland health assessments at two (2) study sites within the Chatten-Muncy Allitment #65009. The assessments looked at the Soil/Site Stability, Hydrologic Function and Biotic Integrity indicators within the vicinity of each study site. Existing monitoring data was incorporated into and in support of the field assessment The summary of each assessment is attached and shown in the following table.

Study Area or Assessment Area	UPLAND			BIOTIC			RIPARIAN		
	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet
65009-HW159-C013 (*)	X	*		X	*		N/A		
65009-JT159-C014 (*)	X			X			N/A		

Twenty-two (22) indicators for Rangeland Health were evaluated for the public land on the Chatten-Muncy allotment #65009. Ten (10) of these assessed soil site stability, 11 hydrologic function and 13 biotic integrity. These qualitative assessments in conjunction with previous data collected on two locations within the allotment were utilized to make rangeland health determinations. This allotment is in the "C" (custodial) management category due to the small amount of public land present.

JT Pasture is a CP-2 Sandy Loam ecological site on 878 acres/399 hectares. The soil is a (RHA)-Redona-Canez association, gently undulating on high terraces in the north-central and eastern parts of the survey area. Slopes are 0-2 percent with elevations between 3,800 ft/1152 m and 4,300 ft/1303 m. A number of indicators assessed rated in the None to Slight to Slight to Moderate category. Functional/structural groups, litter amount, annual production, pedestals and/or terracettes and invasive plants all rated Moderate however. A number of F/S groups is reduced as the absence of the grama (Bouteloua spp.) is missing. Invasive plants mesquite (Prosopis glandulosa) and yucca (Yucca spp.) are also present and scattered. Litter amount falls in the bottom end of the range expected and therefore rates Moderate. Annual production is somewhat suppressed due to the dry conditions and presence of shrubs. About 50% of potential can be observed from an ocular estimate. This indicator rates Moderate as well. There is slight active pedestaling with occasional terracettes. Most of these are on grass plants and small shrubs, most notably ratany (Krameria spp.) and snakeweed (Gutierrezia sarothrae) in flow paths and interspaces. Bareground however rates Moderate to Extreme with estimations using a

step-point method at 50-60 percent. There is a generous amount of physical crusting holding the soil in place and this rates Slight to Moderate with very few breaks in continuity. There is some influence from the adjacent sandy areas as some wind blown deposits can be observed.

The HW Pasture is a CP-2 Sand Hills ecological site with an area of 2,043 acres/851 hectares. The soil is a Jalmar-Roswell-Pyote association found on high terraces in the eastern part of the survey area with 1-25 percent slopes. Indicators of concern are pedestals and/or terracettes, bareground, wind-scoured blowouts and/or deposition areas, soil surface loss or degradation, litter amount and annual production. Pedestals and terracettes rate at Moderate as some pedestaling is evident especially on the shrubs and taller grasses such as sand sage (Artemesia filifolia) and little bluestem (Schizachyrium scoparium). Bareground rates at Moderate to Extreme which is now estimated at 70-80% exceeding the upper end of the expected range. Wind-scoured blowouts rate at Moderate as they are quite common (but expected on this site) because of the mesquite and shinnery oak (Quercus havardii) sand dunal influences. There is some soil horizon loss which exhibits shifts in erosion from dune to dune leaving some areas intact and others degraded and exposed to wind reducing the amount of organic matter. Moderate is the rating given to this indicator. Litter amount rates at Moderate as percentage falls in the bottom end of the range expected. Shinnery oak leaves make up most of the litter. Annual production rates Moderate with approximately 1/2 of the ESD of 1700 lbs/ac or kg/ha estimated. Invasive plants rate at Moderate to Extreme with mesquite and yucca common throughout. Although there is active encroachment of shrubs, the other plant species making up the F/S groups, for the most part remain intact.

Hydrology - Pasture HW-159 - The pedastal indicator rated as moderate. The recent dry conditions in combination with wind and water erosion has possibly decreased the amount of plant cover and possibly decreased infiltration into the soil. This may have increased the amount of pedestaling of plants and rocks. The bareground indicator rated as moderate to extreme. The amount of bareground has possibly increased due to recent dry conditions and wind and water erosion processes. The wind-scoured, blowouts, and or deposition areas indicator rated out as moderate. The decrease in the strength of the physical soil crusts and or the absence of soil crusts, wind velocity, surface dryness, surface roughness, and the decreased amount of surface plant cover has possibly increased the amount of wind-scoured, blowouts and deposition areas in the area. The soil surface loss to degradation has rated out as moderate. The recent dry conditions, decrease in the strength of physical crusts and or absence of soil crusts, wind velocity, surface dryness, and the decreased amount of surface plant cover has possibly increase soil surface loss to degradation. The decrease in litter amount suggests that the dry conditions have had a negative affect on the growing conditions which decreases the amount of litter that is produced. Additionally, the decrease in litter amount can have the effect of increasing the amount of bare soil. All other indicators rated as none to slight or slight to moderate. Sand and gravel deposits of Quaternary pediment deposits outcrop in the area.

Pasture JT-159 - The pedestal indicator rated as moderate. The recent dry conditions in combination with wind and water erosion has possibly decreased the amount of plant cover and possibly decreased infiltration into the soil. This may have increased the amount of pedestaling of plants and rocks. The bareground indicator rated as moderate. The amount of bareground has possibly increased due to recent dry conditions and wind and water erosion processes. The litter amount indicator rated as moderate. The decrease in litter amount suggests that the dry conditions have had a negative affect on the growing conditions which decreases the amount of litter that is produced. Additionally, the decrease in litter amount can have the effect of increasing the amount of bare soil. All other indicators rated as none to slight or slight to moderate. Sand and gravel deposits of Quaternary pediment deposits outcrop in the area.

Wildlife - Evaluation of the integrity of the biotic community considered several indicators as attribute indices for the area of interest. Biotic indicators are interrelated with several other indicators, including soil/site stability, hydrologic function, and vegetation. Several indicators are singularly biotic and address the vegetative aspect of the ecological site description, such as functional/structural groups and plant mortality & decadence, as discussed above.

HW Pasture - Specifically, three biotic indicators fell within the Moderate rating, functional/structural groups, litter amount and annual production. Considering present climate regimes, the latter two indicators would be expected to fall within the normal range of variability, but some groups are reduced. One biotic factor rated as Moderate to Extreme, invasive plants, and its subsequent effect on other indicators, such as plant community composition and distribution relative to infiltration and runoff. As the area of interest falls within a unique range site which support more of a midgrass type, such as sand and little bluestem, changing the vegetative aspect of the area directly affects the soil surface conditions as sandy soil is easily redistributed on the landscape, e.g., becoming more duney or hummocky with more barren areas in blowouts. Mesquite readily invades the area and would increase with declining range site conditions and overall drying conditions over time. The decline in midgrasses would cause a decline in the amount of litter, and most dramatically, in the annual production of the site. There is a distinct loss of midgrasses in the area of interest and indicates declining range condition.

Wildlife Habitat and Population indicators respectively rate Moderate to Extreme and Moderate, primarily for pronghorn, grassland bird species, upland game birds, and a variety of non-game terrestrial species. The composition of vegetation reflects current climatic conditions, e.g., drought for the past several years, the area being within a unique midgrass type in sand hills, and past use. Range site production and cover of a variety of preferred plant species for wildlife, such as forbs and woody browse species, and the availability of seed for food and regeneration, is moderated by climate and land use. It should be noted that as habitat conditions change, i.e., shift to desert shrub grasslands, and shift in wildlife species and populations will occur, with those species preferring a more shrubby component increasing, and those requiring a more open grassland aspect declining. Current observed wildlife habitat conditions indicate room for improvement for existing species utilizing the area and an increase of those terrestrial species that may

have once inhabited a more desert grassland aspect of the area. Improvements include increasing ground cover, decreasing erosion, and reducing the amount of roads in the area for wildlife and rangeland benefit, thereby reversing the static to downward trend in range condition. With respect to Special Status Species, none are known to occur in the area of interest at this time and the Habitat and Population indicators are, therefore, rated None to Slight.

JT Pasture - Specifically, two biotic indicators fell within the Moderate to Extreme rating, litter amount and invasive plants. Two other biotic factor rated as Moderate, functional/structural groups and annual production. Considering present climate regimes, litter amount and annual production can be expected to fall within the normal range of variability. Invasive plants and functional/structural groups are interrelated with an increase in one resulting a decrease in the other due to some factors, including land use and climatic conditions. The range site has the potential to improve with more favorable climatic conditions, wetter periods coupled with proper land use. In addition to the standard worksheet biotic factors, four specific wildlife indicators and descriptors are included in this evaluation.

Wildlife Habitat and Population indicators rate Slight to Moderate, primarily for pronghorn and a variety of non-game terrestrial species, including raptor species that may utilize the area. The composition of vegetation reflects current climatic conditions, e.g., drought for the past several years. Range site production and cover of a variety of preferred plant species for wildlife, such as forbs and woody browse species, and the availability of seed for food and regeneration, is moderated by climate and land use. Current observed wildlife populations reflect habitat condition. With respect to Special Status Species, none are known to occur in the area of interest at this time and the Habitat and Population indicators are, therefore, rated None to Slight.

It is the professional opinion of the Assessment Team that the public land within the Chatten-Muncy allotment meets the Upland and Biotic standards. There are no Riparian issues present, therefore this standard was not addressed. See site notes and recommendations for further information regarding the evaluations on this allotment.

The (*) indicates that the assessment had one or more indicator(s) rated moderate/extreme or extreme. These indicators are:

- Bare Ground
- Invasive Plants
- Wildlife Habitat

These indicators by themselves are not enough to rate the site as not meeting a standard but may warrant future monitoring.

Recommendations: The allotment as a whole must be evaluated to get a more quantitative picture. Monitoring is recommended at more frequent intervals.

Encroachment of mesquite (Prosopis glandulosa) and other shrubs is of concern on both study areas and other adjacent locations. The dry conditions have augmented the already degraded barren spaces between plants. With prudent livestock management by destocking in some areas and favorable climatic conditions, the allotment along with the public land should recover and further protect this portion of the watershed. Wildlife as well as livestock should benefit as a result.

RFOs Upland and Biotic Standard Assessment Summary Worksheet			
SITE 65009-HW159-C013			
Legal Land Desc	SWSW 23 0060S 0280E Meridian 23	Acreage	2043
Ecosite	070BY061NM SAND HILLS CP-2	Photo Taken	Y
Watershed	13060003220 FILLMORE		
Observers	NAVARRO/MCGEE/SPAIN	Observation Date	03/15/2004
County Soil Survey	NM644 CHAVES NORTH	Soil Var/Taxad	
Soil Map Unit	JRC	Soil Taxon Name	JALMAR
Texture Class	NM644 FS	Soil Phase	JALMAR-ROSWELL-PYOTE
Texture Modifier	NM644 FINE SAND		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	12.34	NOAA Growing Season Precipitation	8.9
NOAA Avg Annual Precipitation	14.53	NOAA Avg Growing Season Precipitation	12.08
Disturbances and Animal Use:			

Part 2. Attributes and Indicators

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns					X
Comments:	More wind influenced.					

S H	Pedestals and/or Terracettes			X		
Comments:						
S H	Bare Ground		X			
Comments:	Estimation is now at 70-80%.					
S H	Gullies				X	
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas			X		
Comments:	Expected for this type of area-sand dunal.					
H	Litter Movement				X	
Comments:						
S H B	Soil Surface Resistance to Erosion				X	
Comments:						
S H B	Soil Surface Loss or Degradation			X		
Comments:	There is some loss of upper layer.					
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff				X	
Comments:	Minor effect.					
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups				X	
Comments:	There is some sand sage (Artemesia filifolia), mesquite (Prosopis glandulosa) and yucca (Yucca spp.). Some reduction in bluestems.					
B	Plant Mortality/Decadence				X	
Comments:	10-15% mortality currently.					

H B	Litter Amount			X		
Comments:	Less than 30%					
B	Annual Production			X		
Comments:	Production is approximately 1/2 of ESD.					
B	Invasive Plants		X			
Comments:	Mesquite (Prosopis glandulosa) is common throughout.					
B	Reproductive Capability of Perennial Plants				X	
Comments:						
S	Physical/Chemical/Biological Crusts				X	
Comments:	Physical crusting mostly intact with some breaks in continuity.					
B	Wildlife Habitat		X			
Comments:	Flat to duny sandy grasslands, aka sandhills range site on a downward trend due to the disappearance of midgrasses and encroahment of mesquite.					
B	Wildlife Populations			X		
Comments:	No specific population data at this time. Species of concern include pronghorn antelope, upland game birds, grassland bird species, and a variety of non-game terrestrial wildlife species.					
B	Special Status Species Habitat					X
Comments:	Potential habitat for sand dune lizard because of duny sand hills which is a preferred habitat type.					
B	Special Status Species Populations					X
Comments:	No specific wildlife population data at this time.					
Part 3. Summary						
A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.						
Standard		Extrem	Moderat	Moderat	Slight to	None

Attribute		e	e to Extreme	e	Moderat e	to Slight
S	Soil	0	1	3	3	3
H	Hydrologic	0	1	3	4	3
B	Biotic	0	2	4	4	3

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More Info	Meets
Soil	The soil site stability attributes remain in fair condition. Erosion on these areas fluctuates from dune to dune. The deposits are variable and should be viewed from a larger vantage point beyond just the study area.	1	3	6
Hydrologic	Hydrological function is continuing to protect the resources. However a closer look at mesquite (Prosopis glandulosa) must be done to monitor the increase in percentage canopy as it correlates with perennial grass production. Encroachment of mesquite along with shinnery oak (Quercus havardii) is of concern.	1	3	7
Biotic	Several ratings were in the moderate category and tending toward moderate to extreme. Given the existing climatic regimes and the lack of vegetation, and not only attributable to drought conditions, the rangelands are static in condition. Considering the encroachment of shrubs, the biotic integrity of the area remains intact for the moment. The dry conditions have no doubtedly suppressed perennial grass and forb production, more so than brush encroachment	2	4	7

Site Notes: Despite the recent dry conditions, the site has exhibited some healthy

characteristics. There has been some reduction in the bluestem (Andropogon spp.) species. Shinnery oak (Quecus havardii) is dominant along with mesquite (Prosopis glandulosa). No livestock were observed at the time of assessment. A closer look at the soil survey might indicate that the soil is primarily a Roswell soil phase rather than Jalmar as initially mapped. However these 2 soil phases along with the Pyote series do co-exist but in varied proportions. Quite a bit of litter does exist especially under the shinnery oak and some grass as well.

RFOs Upland and Biotic Standard Assessment Summary Worksheet			
SITE 65009-JT159-C014			
Legal Land Desc	NWSW 28 0060S 0280E Meridian 23	Acreage	878
Ecosite	070BY054NM SANDY LOAM CP-2	Photo Taken	Y
Watershed	13060003220 FILLMORE		
Observers	NAVARRO/MCGEE/SPAIN	Observation Date	03/15/2004
County Soil Survey	NM644 CHAVES NORTH	Soil Var/Taxad	
Soil Map Unit	RHA	Soil Taxon Name	REDONA
Texture Class	NM644 FSL	Soil Phase	REDONA-CANEZ
Texture Modifier	NM644 FINE SANDY LOAM		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	12.34	NOAA Growing Season Precipitation	8.9
NOAA Avg Annual Precipitation	14.53	NOAA Avg Growing Season Precipitation	12.08
Disturbances and Animal Use:			

Part 2. Attributes and Indicators

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns				X	
Comments:						

S H	Pedestals and/or Terracettes			X		
Comments:	Slight pedestaling.					
S H	Bare Ground			X		
Comments:	50-60% is the estimate. Approaches the upper end.					
S H	Gullies				X	
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas				X	
Comments:	Wind deposition from other sandy areas.					
H	Litter Movement				X	
Comments:						
S H B	Soil Surface Resistance to Erosion				X	
Comments:						
S H B	Soil Surface Loss or Degradation				X	
Comments:	Some A-horizon has been lost.					
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff				X	
Comments:						
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups			X		
Comments:	Influences from othe adjacent sandy areas. Ratany (Krameria spp.) is prevalent.					
B	Plant Mortality/Decadence				X	
Comments:						

H B	Litter Amount			X		
Comments:						
B	Annual Production			X		
Comments:	1/2 of the potential is the current estimation.					
B	Invasive Plants			X		
Comments:	Mesquite (Prosopis glandulosa) and yucca (Yucca spp.) is scattered.					
B	Reproductive Capability of Perennial Plants					X
Comments:	Tiller and seed formation.					
S	Physical/Chemical/Biological Crusts				X	
Comments:	Physical crusts are evident.					
B	Wildlife Habitat		X			
Comments:	Flat to hummocky sandy grasslands, aka sandy loam range site, on a downward trend due to the disappearance of midgrasses and encroahment of mesquite. A shift in wildlife species composition due to the shift from a grassland aspect to a more barren shrubby aspect. Possible decline in grassland bird species.					
B	Wildlife Populations			X		
Comments:	No specific wildlife population data at this time.					
B	Special Status Species Habitat					X
Comments:	None known to occur.					
B	Special Status Species Populations					X
Comments:	None known to occur.					
Part 3. Summary						
A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.						

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	0	2	6	2
H	Hydrologic	0	0	3	6	2
B	Biotic	0	1	5	3	4

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More Info	Meets
Soil		0	2	8
Hydrologic		0	3	8
Biotic	Several ratings were in the moderate category and tending toward moderate to extreme. Given the existing climatic regimes and the lack of vegetation, and not only attributable to drought conditions, the rangelands are static in condition. Considering the encroachment of shrubs, the biotic integrity of the area remains intact for the moment. The dry conditions have no doubtedly suppressed perennial grass and forb production, more so than brush encroachment	1	5	7

Site Notes: This site was gps'd and located on the map at the time of assessment. Most of the departure from the ESD is influenced by wind from adjacent sandy dunal mesquite (Prosopis glandulosa) areas. No livestock were observed at the time of assessment. The roads leading into the area are beginning to show some erosion as they are not maintained on a regular basis. Range ratany (Krameria spp.) is the shrub of dominance at the immediate location.

65009 – Site HW159

65009 – Site JT159

Rangeland Health Assessment
Ecological Sites

Allotment 65009

T5S.R26E

T7S.R29E

1 0 1 Miles

Public

Study Plots

State

Private

Study Locations

Ecological Sites

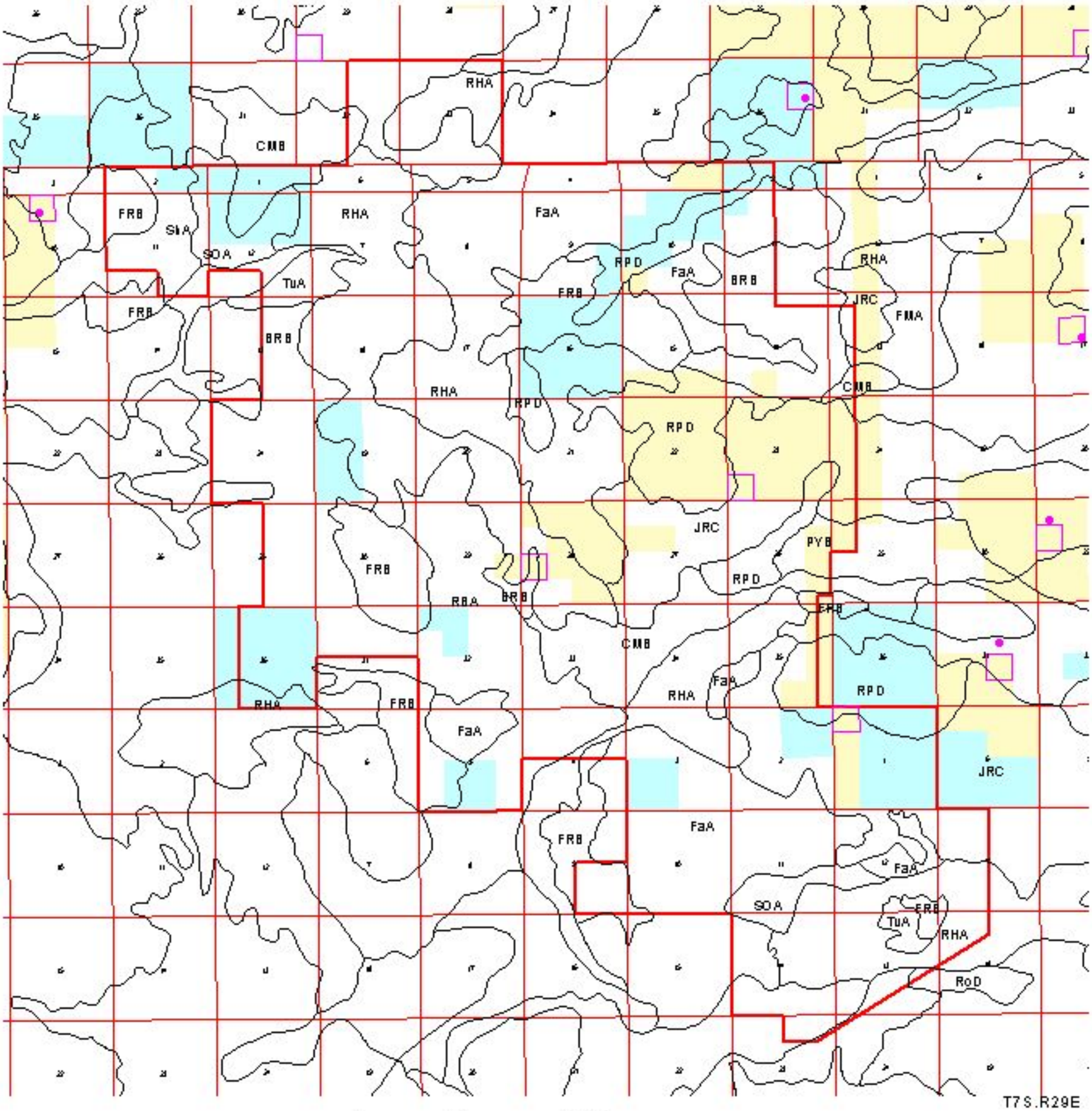
Allotment Boundary

Produced by the Roswell Field Office
GIS Intern on July 8, 2003.

Rangeland Health Assessment
Soil Mapping Units

Allotment 65009

T5S.R26E



1 0 1 Miles

Public

Study Plots

State

Private

Study Locations

Soil Mapping Units

Allotment Boundary

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